

REMARKS

Claims 12-23 are currently pending in the application. Claims 12, 15-19 and 22 are amended. Claims 13, 14, and 20 are cancelled. Claim 23 is added. No new matter is presented. The above amendments and the following remarks are considered by Applicants to overcome each rejection raised by the Examiner and to place the application in condition for allowance. An early Notice of Allowance is therefore requested.

Claims 13-18 are objected to as being of improper dependent form for failing to further limit the subject matter of the previous claims. Claims 13 and 14 are cancelled. Claims 12 and 15-18 are amended to more clearly recite the features of the claimed invention. No new matter is presented. Specifically, claim 12 is amended to recite an arrangement and the dependent claims are amended to further depend from the claimed arrangement. Therefore, Applicants request the withdrawal of the objection of claims 13-18.

Claims 12-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 12, 15-18, 19 and 22 are amended to overcome the cited rejection. Specifically, the claims are amended to more clearly and distinctly recite the features of the claimed invention. No new matter is presented. Therefore, in view of these amendments, Applicants request the withdrawal of the rejection of claims 12-22 under 35 U.S.C. 112.

Claims 12-22 are rejected under 35 U.S.C. 102(b) as being anticipated by any of Qian et al. (Applied Optics, 1991, IDS), Peterson et al. (Biophysical Journal, 1993, IDS), or Sandisone et al. (Handbook of Biological Confocal Microscopy, 1995, IDS). The Examiner takes the position that each of the cited references discloses all the features recited in claims 12-22. In view of the above amendments and the following remark, Applicants respectfully disagree.

Qian is directed to the analysis of confocal laser-microscope optics for three-dimensional fluorescence correlation spectroscopy. Although, Qian discloses the method of

fluorescence correlation spectroscopy, Qian does not teach or suggest the features recited in claims 12 and 19. For instance, Qian fails to teach or suggest that a computer performs an analysis carried out by fluorescence correlation spectroscopy and the unit of imaging being based on the principle of laser scanning microscopy. Qian does not teach or suggest a system having at least one imaging microscope unit for determining and selecting measurement locations for an analysis of molecular interaction in at least two dimensions.

Peterson relates to a correlation by means of a laser-scanning microscope of scanned fluorescence images with respect to each other. Peterson does not teach or suggest a point signal which is correlated in time, as with FCS. In view of the above amendments, it is submitted, Peterson does not teach or suggest that at least one device unit provides data and analysis based on a correlation with the image of the imaging microscope unit, wherein the computer performs an analysis of molecular interactions carried out by fluorescence correlation spectroscopy (FCS) and the unit for imaging is based on the principle of laser scanning microscopy.

Sandisone discloses the method of Fluorescence Photobleaching Recovery FPR. FPR can be used for measuring the integral diffusion coefficient of fluorescent molecules by bleaching the fluorescent dyes with a laser beam until saturation of the dye molecules happens and after stopping the bleaching- the time period is measure until the fluorescent intensity will be recovered before the bleaching process happens. From this time period and the known bleached spot the speed of the diffusion can be calculated as a mean value over all different molecules but this diffusion value will not give any specific information about different species of fluorescent molecules which may have been bound or otherwise interactive to other molecules and having moved inside the bleached spot from the environment.

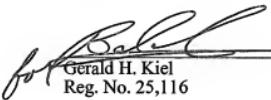
In contrast, in the method of Fluorescence Correlation Spectroscopy, one has to look for time related single photons which will be detected from a confocal volume spot within the sample but each photon has to be detected and counted so the statistical behavior can be analyzed. As long as the signals are correlated in time of their detection intervals these photons are coming from the same dye molecule which moves through the observed confocal volume spot in the sample. The measurement signal is not an integrated signals versus the time scale as disclosure of Sandisone. Rather, it is a follow up of the statistical events of the photons which have reached the detector. The correlation analysis of these events provides the absolute time period the diffusing molecule has stayed within the observed volume and also the absolute number of the observed molecules. Analyzing a larger number of such single molecule events will give you statistics on how long these molecules have been in the observed spot.

In other words, the FPR method allows the measurement of the means value of the diffusion speed and diffusion constant of the labeled molecules. However, this method would not provide information regarding them molecular interactions, if there are bound or unbound molecules involved. Thus, the molecular interactions can only be observed by having a device for analyzing molecular interactions as provided in the claimed invention. Thus, Sandisone only discloses measuring a simple diffusion time of labeled molecules and does not teach or suggest analyzing molecular interactions. As a result, it is respectfully submitted that Sandisone fails to teach or suggest at least one device unit provides data and analysis based on a correlation with the image of the imaging microscope unit, wherein the computer performs an analysis of molecular interactions carried out by fluorescence correlation spectroscopy (FCS) and the unit for imaging is based on the principle of laser scanning microscopy. Therefore in view of the above distinctions and amendments, Applicants respectfully submit that the cited references fail to teach or suggest the features

recited in claims 12, 15-19, and 21-23. Accordingly, Applicants request the withdrawal of the rejection of claims 12-22 under 35 U.S.C. 102(b).

For the reasons presented above, claims 12, 15-19, and 21-23, all the claims pending in the application, are believed by Applicants to define patentable subject matter and should be passed to issue at the earliest possible time. A Notice of Allowance is requested.

Respectfully submitted,

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